

REMARKS/DISCUSSION OF ISSUES

By this Amendment, Applicants: cancel claims 8 and 21-22; amend claim 15 to be rewritten in independent form without any change of scope; and add new claims 27-33. Accordingly, claims 5, 9, 11-13, 15-18 and 23-33 remain pending in the application.

**THE EXAMINER IS ONCE AGAIN RESPECTFULLY REQUESTED TO
STATE WHETHER THE DRAWINGS ARE ACCEPTABLE.**

A new Office Action is respectfully requested, and reexamination and reconsideration of the present application, are respectfully requested in view of the following remarks.

REQUEST FOR NEW OFFICE ACTION

Among other things, the Office Action fails to substantively examine claims 11-13 and 17-18 and 25-26.

All of the claims 11-13 and 17-18 and 25-26 include an inverter coupled to the primary winding of the transformer, and means for deriving from each of the multiple outputs a measuring signal for regulating an output voltage of the inverter. Applicants see no mention of these features anywhere in the Office Action. It is impossible to examine claims 11-13 and 17-18 and 25-26 without considering these clearly-recited features and, at a minimum, at least facially assert that they are disclosed somewhere in at least one of the references that has been cited against these claims.

Accordingly, claims 11-13 and 17-18 and 25-26 having not been fully and completely examined on its merits, **Applicants respectfully request a new Office Action that examines all of the pending claims in this application.**

35 U.S.C. § 102 & 103

The Office Action rejects: claims 9, 15-16 and 21-24 under 35 U.S.C. § 102 over Balaban U.S. Patent 4,481,564 ("Balaban"); and claims 5, 11-13, 17-18 and 25-26 under 35 U.S.C. § 103 over Balaban in view of Huang et al. U.S. Patent

6,344,979 ("Huang")

Applicants respectfully traverse all of these rejections for at least the following reasons.

Claim 9

Among other things, in the resonant converter of claim 9 different ratios of output voltage to number of turns are provided in respect of associated secondary windings having different winding directions.

Applicants respectfully submit that Balaban does not disclose any resonant converter including such a combination of features.

The Office Action states that "Balaban discloses . . . a resonant converter . . . a different ratio of output," citing col. 4 line 65 – col. 5, line 10.

At the outset, claim 9 recites different ratios of output voltage to number of turns are provided in respect of associated secondary windings having different winding directions, **not** "a different ratio of output," whatever that is supposed to mean. Furthermore, the cited text merely discloses that different output voltage values can be provided in Balaban's circuit by providing different numbers of turns on the windings. However, it does not disclose that different **ratios of output voltage to number of turns** are provided in respect of associated secondary windings having different winding directions.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 9 is patentable over Balaban.

Claims 16, 23 and 24

Claims 16, 23 and 24 depend from claim 9 and are deemed patentable for at least the reasons set forth above with respect to claim 9, and for the following additional reasons.

Claim 16

Among other things, in the resonant converter of claim 15 at least two of the secondary windings are electrically separated from one another.

Applicants respectfully submit that Balaban does not disclose such a feature.

The Office Action states that Balaban discloses in FIG. 1 that elements 22

and 24 are electrically separated.

Applicants respectfully disagree. In that regard, Applicants note that the end of winding 22 having the dot is electrically connected to the end of winding 24 that does not have the dot, and both of these ends are connected to ground. In that regard, Applicants respectfully point out that windings 22 and 24 have the same relationship as windings 20 and 22 (one end of each winding is connected to ground), which the Examiner has already admitted are electrically connected (see Office Action at page 3, lines 5-6). It is simply not possible for windings 22 and 24 to be electrically separated, while windings 20 and 22 are electrically connected, since the two pairs of windings are both connected together in the same way to ground.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 16 is patentable over Balaban.

Claim 15

Among other things, in the resonant converter of claim 15, at least two of the secondary windings are electrically separated from one another.

Applicants respectfully submit that Balaban does not disclose such a feature.

The Office Action states that Balaban discloses in FIG. 1 that elements 22 and 24 are electrically separated.

Applicants respectfully disagree. In that regard, Applicants note that the end of winding 22 having the dot is electrically connected to the end of winding 24 that does not have the dot, and both of these ends are connected to ground. In that regard, Applicants respectfully point out that windings 22 and 24 have the same relationship as windings 20 and 22 (one end of each winding is connected to ground), which the Examiner has already admitted are electrically connected (see Office Action at page 3, lines 5-6). It is simply not possible for windings 22 and 24 to be electrically separated, while windings 20 and 22 are electrically connected, since the two pairs of windings are both connected together in the same way to ground.

Accordingly, for at least this reason, Applicants respectfully submit that claim 15 is patentable over Balaban.

Claim 5

Among other things, the resonant converter of claim 5 includes a capacitive element in series with the primary winding, and at least one external inductive element in series with the capacitive element and the primary winding, wherein the resonant frequency of the resonant converter is determined by the main inductance and the leakage inductances of the transformer, the capacitive element, and the external inductive element.

Applicants respectfully submit that Balaban does not disclose any of these features, and Applicants further traverse any proposed modification of Balaban to include these features that is based on any teachings or disclosure from Huang, for at least the following reasons.

The Office Action states that Balaban discloses “a capacitor and inductive element” as items 32 and 38 in FIG. 1. However, it is plainly evident from FIG. 1 that elements 32 is not in series with the primary winding, and element 38 is not in series with element 32 and the primary winding. Therefore, it is impossible for elements 32 and 38 of Balaban to correspond to the recited capacitor and inductor.

Furthermore, Applicants respectfully submit that the supposed motivation for modifying Balaban stated in the Office Action makes no sense. The Office Action states that:

“[i]t would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Balaban’s power supply by utilizing the technique taught by Huang et al. for the purpose of improving the conversion efficiency and providing a configuration and method by providing a LLC resonant network to a DC/DC converter to have dual characteristic resonant frequencies such that output voltage can be controlled by adjusting the switching period of a pair of input switches.”

Claim 5 does not recite any pair of input switches, nor does Balaban disclose

any pair of input switches. So why are they mentioned here? Huang is directed toward improving the efficiency of a resonant converter by switching at two different resonant frequencies. However, Balaban does not even disclose a resonant converter as disclosed in the present application or Huang. Instead, Balaban is directed to a switched-mode power supply using switching transistor 46 where the turn-on and turn-off speed are enhanced by the addition of a first circuit that disables the regulator when the switching transistor 46 is off, and a second circuit that diverts drive current from the switching transistor 46 when it is being turned-off. How is one even supposed to modify Balaban to "utilize the technique taught by Huang?" The Office Action is silent. Applicants respectfully submit that one cannot make such a modification.

Indeed, it is not possible to modify Balaban to add a capacitive element in series with the primary winding, and at least one external inductive element in series with the capacitive element and the primary winding, without changing Balaban's operating principle, rendering Balaban unsatisfactory for its intended purpose, and indeed, rendering it altogether inoperable. This is contrary to M.P.E.P. § 2143.01, which provides that:

'If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)."

and

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)."

Furthermore, Applicants respectfully submit that the proposed combination of Balaban and Huang is also improper under M.P.E.P. § 2143.01, which provides that:

“Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.”

Here, the Office Action does not cite anything in the prior art in support of the supposed motivation for the modification of Balaban.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 5 is patentable over the cited prior art.

Claims 11-13 and 17-18 and 25-26

Claims 11-13 and 17-18 and 25-26 depend from claim 5 and are all deemed patentable for at least the reasons set forth above with respect to claim 5, and for the following additional reasons.

Among other things, the resonant converters of claims 11-13 and 17-18 and 25-26 all include an inverter coupled to the primary winding of the transformer, and means for deriving from each of the multiple outputs a measuring signal for regulating an output voltage of the inverter.

Applicants respectfully submit that no proper combination of Balaban and Huang would produce a resonant converter including this combination of features. Indeed, the Office Action fails to ever allege that either Balaban or Huang discloses these features. So no possible combination of Balaban and Huang could produce a resonant converter including this combination of features.

Accordingly, Applicants respectfully submit that claims 11-13 and 17-18 and 25-26 are patentable over the cited art for at least this additional reason, and the further reasons set forth below.

Claims 12-13

Among other things, in the resonant converters of claims 12 and 13 at least two of the secondary windings are electrically separated from one another.

Applicants respectfully submit that Balaban does not disclose such a feature.

The Office Action states that Balaban discloses in FIG. 1 that elements 22 and 24 are electrically separated.

Applicants respectfully disagree for the reasons set forth above with respect to claims 15-16.

Accordingly, for at least this additional reason, Applicants respectfully submit that claims 12-13 are patentable over the cited prior art.

DOUBLE PATENTING REJECTION

The Office Action also rejects claims 5, 9, 11- 13, 15-18 and 23-26 on the basis of the judicially created doctrine of double patenting over U.S. Patent 6,721,191 which issued from the very same parent application from which this application claims priority.

Applicants will consider filing an appropriate Terminal Disclaimer after the application is otherwise in condition for allowance such that no further claim amendments are to be entered with respect to the application.

NEW CLAIMS 27-33

New claims 27-33 depend variously from claims 5, 9 and 15 and are deemed patentable for at least the reasons set forth above with respect to claims 5, 9 and 15, respectively, and for the following additional reasons.

All of the claims 27-33 feature a regulating circuit for deriving from each of the multiple outputs a measuring signal for regulating an output voltage of the inverter. Applicants submit that none of the cited references disclose such a regulating circuit.

Furthermore, claims 27, 29-30 and 32-33 feature an inverter coupled to an output of the regulating circuit and in response thereto generating a chopped DC voltage signal to be coupled to the primary winding of the transformer. Applicants

submit that none of the cited references disclose such an inverter coupled to an output of a regulating circuit.

Additionally, in the resonant converters of claims 27, 30 and 33, the regulating circuit provides a signal to the inverter to set a frequency and a duty cycle of the chopped DC voltage signal. Applicants submit that none of the cited references disclose such a feature.

Accordingly, for at least these additional reasons, Applicants respectfully submit that new claims 27-33 are patentable over the cited prior art.

CONCLUSION


In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 5, 9, 11-13, 15-18 and 23-33, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283.0720 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment (except for the issue fee) to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

VOLENTINE FRANCOS & WHITT, P.L.L.C.

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By: 
Kenneth D. Springer
Registration No. 39,843

VOLENTINE FRANCOS & WHITT, P.L.L.C.
One Freedom Square
11951 Freedom Drive, Suite 1260
Reston, Virginia 20190
Telephone No.: (571) 283.0724
Facsimile No.: (571) 283.0740